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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/652,542	08/31/00	PICKELMAN	D DP-301923

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EXAMINER

EDGAR, R

ART UNIT	PAPER NUMBER
3745	

DATE MAILED:

10/25/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/652,542

Applicant(s)

PICKELMAN ET AL.

Examiner

Richard Edgar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

Figures 1-6 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11, 13-14, 16-17 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Robbie (5,299,908). Robbie discloses an impeller (5) for a regenerative turbine pump comprising a hub (8) having an aperture in its center to accept and secure a shaft (2) allowing the hub to rotate about a center axis. The pump further comprises a concentric outer ring (see Figs. 2 and 6) encircling the hub, wherein the vanes (8) are fixedly mounted to the hub (6) and linearly extend radially outward from an entrance portion (21) to an exit portion (8) adjacent to the concentric outer ring. The vanes are V-shaped and are each inclined in the direction of rotation at an angle approximately equal to 45 degrees relative to a plane bisecting the diverging blades. See Robbie, column 1, lines 27-36. The trailing surfaces of the blades (sidewalls) each have a chamfer (20) located on the entrance portion (21) at a predetermined angle, equal to

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that of the flow approaching the trailing surface (columns 1-2, lines 67-13), typically 22.5 degrees relative to the unchamfered trailing surface (column 4, lines 2-4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-4, 6-7, 21, 23-24, 26-27 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robbie as applied to claim 11 above, in view of Yu (5,762,469). Robbie discloses all of the claimed subject matter except for each vane being at least partially non-linear, or curved, on at least one of an upstream face and a downstream face, from the entrance portion to the exit portion.

Yu teaches the vane geometry for a regenerative turbine fuel pump impeller in Figure 8 having an upstream face (56) as well as a downstream face (58) each having a partially non-linear configuration from the entrance portion to the exit portion adjacent the sidewall (60) for the purpose of producing a stronger secondary vortex (column 4, lines 1-8).

Since Robbie and Yu are both impellers for regenerative fuel pumps, it would have been obvious at the time the invention was made to a person having ordinary skill in the art, to modify the linear vanes of Robbie, based on the teachings of Yu, to be

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partially non-linear vanes inclined in the direction of rotation for the purpose of creating a stronger secondary vortex.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Robbie as applied to claim 11 above, in view of Kato et al. (5,372,475); and claims 2 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the modified Robbie as applied to claim 1 above, in view of Kato et al.

Robbie in regards to claim 12 and the modified Robbie as applied to claims 2 and 22, disclose all of the claimed subject matter except for the entire trailing edge surface having a taper.

Kato et al. teach in Figs. 18 and 19, an impeller for a fuel pump having a taper (3231a) formed on the entire trailing surface of the vane (3230) for the purpose of reducing the loss of vortex fuel currents (Kato et al. column 17, lines 9-11).

Since Robbie and Kato et al., and the modified Robbie and Kato et al., are all regenerative fuel pump impellers, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the partial vane trailing edge chamfer of Robbie and the improved Robbie, based on the teachings of Kato et al., to be a vane having a chamfer over the entire trailing edge for the purpose of reducing the loss of vortex fuel currents.

Claims 15 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robbie; and claims 5, 8-9, 25, and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over the modified Robbie as applied to claim 1 above.

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Robbie and the modified Robbie teach the use of V-shaped vanes for a regenerative fuel pump having a chamfer on the trailing surface. Robbie and the improved Robbie do not teach forming the chamfer at a 30 degree angle, nor do Robbie or the improved Robbie teach an angle range of 80-86 degrees for the downstream face of the vanes.

Since applicant has not disclosed that having predetermined and prespecified angles solve any stated problem or is for any particular purpose above the fact to increase the pump efficiency and it appears that the impeller of Robbie and the improved Robbie would perform equally well with a 30 degree chamfer and downstream faces of vane angles between 80-86 degrees as claimed by applicant, it would have been an obvious matter of design choice to modify the vane geometry of Robbie and the improved Robbie by utilizing the angle measurements as claimed for the purpose of improving the pump efficiency.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the modified Robbie as applied to claim 1 above, and further in view of Kato et al. The modified Robbie teaches all of the claimed subject matter except for a notched aperture defined in the impeller hub.

Kato et al. teach in Figs. 3-4 and in column 6, lines 62-65, a fuel pump impeller with a notched aperture (325) located in the hub center for the purpose of securing a similar shape shaft through the aperture.

Since the modified Robbie and Kato et al. are both fuel pumps, it would have been obvious at the time the invention was made to one of ordinary skill in the art to

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modify the aperture of the improved Robbie, based on the teachings of Kato et al., to be a notched aperture for the purpose of securing a similar-shaped shaft into the impeller.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 11, 12, 13, 14, 15, 16, 17, 18, 19 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 10, 11, 12, 13, 14, 15, 16, 17, 18, respectively of copending Application No. 09/571,825.

This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double

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patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1,2,3,4,5,6,7,8,9,10,21,22,23,24,25,26,27,28, and 29 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1,1,2,3,4,5,6,7,8,9,1,1,2,3,4,5,6,7, and 8, respectively of copending Application No. 09/571,825 in view of Yu (5,762,469). Claim 1 of copending application 09/571,825 claims substantially the same subject matter except for the vanes being at least partially non-linear on at least one of an upstream face and a downstream face.

Yu teaches the vane geometry for a regenerative turbine fuel pump impeller in Figure 8 having an upstream face (56) as well as a downstream face (58) each having a partially non-linear configuration from the entrance portion to the exit portion adjacent sidewall (60) for the purpose of producing a stronger secondary vortex (column 4, lines 1-8).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the vanes of claim 1 of copending application 09/571,825 such that the vanes have a non-linear configuration on at least one of an upstream face and a downstream face for the purpose of increasing the secondary vortex in the pump channel.

This is a provisional obviousness-type double patenting rejection.

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Claims 20, 30, and 31 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 10, 1, and 1, respectively of copending Application No. 09/571,825 in view of Yu (5,762,469). Claims 1 and 10 of copending application 09/571,825 claim substantially the same subject matter except for the exit and entrance angles having a range between 15-30 degrees and 5-30 degrees, respectively; nor does copending application claim a tangent drawn at a center portion of the vane is normal to the direction of rotation.

Yu teaches the use of a trailing chamfer angle on regenerative turbine blades between a value of 5 and 30 degrees, for the purpose of maximizing the impeller efficiency. See Yu column 3, lines 25-29.

Yu also shows in Figs. 6-8, the vanes (54) diverging from a partition (62), where a tangent drawn at the center is normal to the direction of rotation (R) for the purpose of conveying momentum to the fluid by the vanes.

Regarding claims 20 and 30, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the vanes of claims 1 and 10 of copending application 09/571,825 such that the entrance and exit angles lie within a 5-30 degree inclination for the purpose of increasing impeller efficiency.

As to claim 31, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to locate the vanes at a position which centers the vanes normal to the direction of rotation for the purpose of allowing the vanes to impart momentum onto the fluid.

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This is a provisional obviousness-type double patenting rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Edgar whose telephone number is (703) 305-0050. The examiner can normally be reached on Monday-Thursday and alternate Fridays 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (703) 308-1044. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3588 for regular communications and (703) 305-3588 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0861.



Richard Edgar
Examiner
Art Unit 3745

RE
October 22, 2001



EDWARD K. LOOK
SUPERVISORY PATENT EXAMINER
GROUP 3700

10/22/01

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may **NOT** be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a)

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.